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ASSESSMENT OF SPECIFIC INCOMEAND COSTS OF 22 ABAN HOSPITAL OF LAHIJAN, IRAN, IN 2012

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A B S T R A C T

Introduction:The main problem of health care services is their economic aspect. Hospitals are one of the most important and costly units of health care system in every country and are of great importance in health and economy as one of the main organizations providing health care services. The present paper aims to compare the status of income and costs of *22 Aban hospital of Lahijan* in 2012.

Materials and Methods: The present paper is a descriptive research and is conducted in the form of an applied study. The instrument used in this study is a checklist which was used for data collection after the confirmation of its content validity. Furthermore, collected data are classified and analyzed based on determined objectives.

Results: On average, 21.98% of the income of the hospital under study (in 2012) was earned through cash revenues and 78.02% obtained from insurance organizations of which 4.80% belongs to services provided for traffic accident victims and is paid by the Health Organization and 4.26% is included in insurance deductions. The proportion of the costs of personnel, energy, maintenance, food, medicine, facilities, consumables and other expenditures to the total operating costs of the hospital are 66.77%, 0.58%, 0.83%, 3.63%, 24.43% and 3.76%, respectively. In addition, 41.24% of the operating costs of this center are covered by the operating income and 33.81% by public and private credits. In all, the hospital is faced with a 24.95% deficit.

Conclusion: Considering the results of this study and the hospital's deficits, it is necessary to take serious steps for revising the structure and management of the hospital, reducing the costs and insurance deductions, and optimizing income collection. Moreover, the capacity of this medical center should be improved through development and expansion in order to achieve favorable efficiency and return.

INTRODUCTION

Health is a priceless blessing. In other words, health is an asset that must be provided in full and absolute terms and its maintenance is above any financial consideration. Maintaining health, however, has considerable costs and the limited number of resources available should be best employed to respond to the needs of people as much as possible (*Abbas Imani*, 2008). Hospitals as health service providing organizations have a special importance and sensitivity in the economy and healthcare. This feature is crucial, especially in developing countries. In these countries, hospitals consume approximately 50 to 80 percent of the budget allocated to health sector. However, in developed countries, the share of hospitals in health care costs in the public sector does not exceed 40 percent. In developing countries, over 80 percent of these dwindling resources belong to hospitals whose efficiency does not exceed 50 percent of their capacity (*Rezapour*, 2006).

Public hospitals are funded through the financial resources of the government and their own income. Government funds are intended for the payment of salaries and other employee benefits and are allocated to hospitals by the Ministry of Health and Medical Education. Other hospital costs are funded through their own income including payments from insurance organizations and direct payments by patients (*Sadeghi*, 2009). As stipulated by Article 92 of the Law of the Fourth Economic, Social and

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Cultural Development Program of the Islamic Republic of *Iran*, all hospitals are required to take action for prompt and unconditional admission and treatment of traffic accident victims whether inpatient or outpatient. Under this directive, medical centers have no right to receive any payment during admission and hospitalization of the victims. The Ministry of Health provides all the medical expenses of the victims by receiving records from hospitals (Article 92 of administrative directive, the Ministry of Health, 2007).

A study conducted by the Health Economics Research Unit of the Center for Budget and Performance Monitoring of the Ministry of Health and Medical Education in 2007 shows that averagely about 70 percent of the exclusive income of hospitals in Iran is received from insurance organizations (Ministry of Health, 2007). The results of a study by this unit in two hospitals of the country in 2006 showed that the share of income received from insurance organizations in the exclusive income of hospitals is 79 percent in one of them and 55 percent in the other. It should be noted that, in this study, the share of cash income in the total revenue is 16 percent in the first hospital and 25 percent in the second hospital (Ministry of Health, 2006). The results of a study conducted on ten private hospitals in Uganda showed that the share of income directly paid by patients to the hospital made up an average of 40 percent of the total revenue of these centers. Some hospitals had also been more successful in attracting government funding and receiving smaller amounts from patients (*Amone*, 2005). Also, the results of a study conducted on the hospitals of *Shahid Beheshti* University of Medical Sciences showed that about 70 health care cases were recorded but not turned into income due to poor management, poor utilization of manpower and technical problems in the use of comprehensive software for registration of services by health staff. The loss aggravated by an annual rate of insurance deductions adds up to over 240 billion *Rials* (*Omrani* et al, 2012).

Among the various components of the health system, hospital services are the most important factor in the increase of costs. Among the major reasons for this growth we can point out to the need for more skilled manpower, access to advanced technology and more importantly the lack of management efficiency in resource use. These factors double the need to review the terms of this section, since this process it makes it impossible to maintain even the current levels of service. Therefore, controlling the costs of health care services should always be done efficiently, since cutting out on costs leads to the creation of resources for use in other sectors and will ultimately improve the welfare of the people. In this regard, considering the limited number of resources, it is necessary to adopt management strategies for maximizing efficiency, improving operations and reducing costs in the health sector so as to make it possible for the proper utilization of hospital facilities (*Khoshnam*, 2011).

In a study conducted on the expenses of the *Qods* Hospital in *Qazvin*, *Iran*, it was found that personnel costs had a major share in the total operating costs and made up 71 percent of the total costs. From the total operating costs, medicine and medical supplies and materials made up 11.27 percent, food 7 percent, building maintenance and utilities 2 percent, and other costs 8.73 percent (*Rezapour*, 2008). The results of a study on the financing and costs of the hospitals of *Zanjan* University of Medical Sciences during the Fourth Iranian Development Program, showed that averagely 72 percent of hospital revenues was gained from the amounts received from insurance organizations, 20 percent gained from the amounts received from patients, and 8 percent gained from the amounts received from the Ministry of Health and Medical Education for treatment costs. Averagely, the total operating costs of the studied hospitals were comprised of 57 percent personnel costs, 0.63 percent energy costs, 2.76 percent maintenance costs and 25.6 percent the costs of medication, equipment and consumables. Also, averagely 2.44 percent of the total amount requested by the hospitals from insurance organizations during the years of the study became subject to deductions (*Khoshnam*, 2011). Since the main problem in providing health services is its economic aspect and inasmuch as hospitals are among the most important and most expensive units in the health system of any country, it seems logical that an important part of economic studies related to health care focus on hospitals (*Rezapour*, 2006). Proper planning for the use of existing resources will improve the quality of hospital services.

Therefore, the development of economic thought in the management of Health Organizations is of special importance (*Khoshnam*, 2011). Obviously, continuous efforts to improve hospital performance, in addition to increasing productivity, provide patients with a better quantity and quality of services and with cheaper prices (*Anvari* et al., 2005). For this reason, this study is conducted with the aim of comparing the income and costs of *22 Aban hospital of Lahijan, Iran*, in 2012 so as to provide a clear picture of the current situation and help university and hospital officials determine the performance and understand the strengths and weaknesses of the system and help managers make decisions to direct limited resources to maximum efficiency.

MATERIALS AND METHODS

This research is a descriptive-analytical study which is conducted in the form of an applied research in *22 Aban hospital of Lahijan, Iran*, based on data collected in 2012. In order to collect data, we referred to the Finance Unit of the center. The instrument used in this study is a checklist which was used for data collection after the confirmation of its content validity by professors and experts and the application of desired revisions. After collecting the data and based on the objectives, we calculated the proportion of each item (revenues, expenses and insurance deductions) to total revenue and operating expenses in terms of percentage. Then, according to the set objectives and the categorization of obtained data, hospital revenues and expenses are compared with each other.

RESULTS AND DISCUSSION

The results of this study indicate that *22 Aban hospital of Lahijan*, Iran, in 2012, had a total of 300 fixed beds and 150 active beds. In addition, bed occupancy rate, workflow platform and average length of stay of patients in hospital in the study period were 55.95 percent, 79 times and 2.58 days, respectively.

The total operating income of the hospital in the study period was equal to 53,609,661,720*Rials*. From this amount, 11,779,198,330*Rials* belong to cash income and 41,830,463,390*Rials* to insurance income. The share of services provided to traffic accident victims is equal to 2,575,084,164*Rials*. In addition, from the total operating income, 51,826,910,861*Rials* comprises the net income and 1،782،750،859*Rials* has been deducted from the insurance income of the hospital by insurance deductions.

On average, 21.98% of the income of the hospital under study (in 2012) was earned through cash revenues and 78.02% obtained from insurance organizations of which 4.80% belongs to services provided for traffic accident victims and is paid by the Health Organization and 4.26% is included in insurance deductions. The proportion of the costs of personnel, energy, maintenance, food, medicine, facilities, consumables and other expenditures to the total operating costs of the hospital are 66.77%, 0.58%, 0.83%, 3.63%, 24.43% and 3.76%, respectively. In addition, 41.24% of the operating costs of this center is covered by the operating income and 33.81% by public and private credits. In all, the hospital is faced with a 24.95% deficit.

An examination of the proportion of the amount received from insurance organizations to the total income of the hospital shows that the total an average of 78.02 percent has been received from insurance organizations. A comparison of this figure with the results of the study of health economics unit in 2007 shows that averagely 70 percent of the exclusive income of the hospital is received from insurance organizations in the whole country (Ministry of Health, 2007). This also differs with the result of another study conducted on two hospitals in 2006 that the proportion of the amount received from insurance organizations comprised 79 percent of the total exclusive revenues of the first hospital and 55 percent of the total exclusive revenues of the second hospital (Ministry of Health, 2006).

On average, 21.98 percent of the total revenue of the hospital under study is in the form of cash income. The cash income of hospitals is in fact gained from direct payments out of pocket including franchise paid by insured patients and payments by non-insured patients. Thus, the low proportion of cash income to the total income of hospitals represents the low amount of direct payments out of pocket for receiving medical care in hospitals. This proportion is higher in hospitals located in more deprived areas which could be due to inefficient or minimal insurance coverage. The results of a study by *Semnani* indicate that despite the increasing coverage of patients by insurers and supplemental insurance systems, still more than half of health care costs in all income groups is paid directly out of pocket (*Semnani*, 2003). It seems that the lower amount of direct payments by patients in this study compared with the national average is because this study considers only the share of direct payments by patients in the hospital whereas the other study mentioned above considers the proportion of direct payments to the total resources in the health sector.

The results of the study conducted by the Health Economics Unit of the Center for Budget and Performance Monitoring of the Ministry of Health and Medical Education in 2006 on two hospitals in the Iran show that the proportion of cash income to the total revenue of hospitals is equivalent to 16 percent in the first hospital and 25 percent second in the second hospital (Ministry of Health, 2006). The results concerning the first hospital are close to the results of this study. Also, the results of another study by this unit in 2007 show that the average proportion of cash income to the total revenue of hospitals is about 30 percent (Ministry of Health, 2007) which are not consistent with the results of this study. This could be due to the development of general insurance and the popular use of supplementary insurance systems. Also, the results of this study are different from those of a study conducted on ten private hospitals in Uganda which showed that the share of income directly paid by patients to the hospital made up an average of 40 percent of the total revenue of these centers (*Amone*, 2005).

The ratio of net income to total income indicates that the hospital did not fully realize its credit request from insurance organizations, which is equal to 96.67 percent for the hospital under study. This figure is greater than the ratio obtained in the 2006 study conducted by the Health Economics Unit on two hospitals in Iran which showed a ratio of 80 percent for one hospital and a ratio of 90 percent for the other hospital (Ministry of Health, 2006). In addition, the deductions index as applied by insurance organizations on the financial records of the hospital under study is 4.26 percent which is close to the results of a study on the hospitals of *Zanjan* University of Medical Sciences which showed a deductions index of 2.4 percent (*Khoshnam*, 2011).

It should be noted that in the hospitals studied, hospital records of the medical insurance organization and the social security organization are subject to deductions in two stages. The first stage of deductions is applied by insurance experts of the hospital. After the application of deductions, the center collects and sends the financial documents to insurance organizations. In fact, due to wrong procedures, the enormous data of deductions applied by insurance experts get buried and lost in the hospital and cannot be accessed in any possible way. The second stage of deductions is applied at the medical records office of insurance organizations. These deductions are the only statistics available to the income units of hospitals and are mistakenly labeled as hospital deductions. The low amount of these deductions are also interpreted mistakenly as a sign of efficient management of the system.

So it seems that the hospital revenues and costs committee, a main duty of whose is to reduce the amount of deductions and realize the income gained from providing care for insured patients, is faced with problems in the initial step which is the collection of comprehensive, thorough and transparent data regarding the type and amount of deductions by insurance experts. Therefore, regarding the fact that the main source of revenues for the hospitals under study is the amount received from insurance organizations, it seems necessary to make it a prior focus for the hospitals to realize the maximum revenues possible. The results of this study indicate that, on average, 78.02 percent of the income of the hospital is gained form the amount received from

insurance organizations. This high percentage can be an important indication that hospitals should strive for the maximum realization of revenues from insurance organizations.

In this study, the concept of cost to income ratio is employed to examine the coverage of the costs of hospital by its revenues. The results show that 41.24 percent of the operating costs of the center are covered by the operating income and 33.81 percent through public funds and proprietary. The hospital is faced with a total of 24.95 percent deficit. The results are consistent with the idea that the desired minimum capacity of hospitals is 100 to 150 active beds (*Asefzadeh*, 2007) because it reflects the fact that the lower number of active beds in hospitals will impose larger economic costs to the health system. The results of a study conducted and published by the Department of Health Policy in 2004, declares the government's share in funding resources for the health sector as about 27 percent (Ministry of Health, 2010), which is close to the results of this study.

Based on the results of this study, personnel costs comprise 66.77 percent of the total operating costs of the hospital under study. This proportion is higher than the results of studies conducted on a hospital in *Lithuania* (*Kalibatas*, 2005),*Shohadaye Hafte Tir* Hospital, *Tehran* (*Rezapour*, 2006), Public and Educational Hospitals of *Iran* University of Medical Sciences (*Rezapour*, 2006) and Hospitals of *Zanjan* University of Medical Sciences (*Khoshnam*, 2011) in which the ratio of personnel costs to the total operating costs of the hospitals were 46, 59, 62 and 57 percent respectively.This proportion is lower than the results of studies conducted on a hospital inHealth Care and Educational Centers of *Qazvin* University of Medical Sciences (*Rezapour* et al., 2009), the hospitals of *Isfahan* University of Medical Sciences (*Ashrafi*, 2007) *and Qods* Hospital of *Qazvin*, *Iran* (*Rezapour*, 2008), in which the ratio of personnel costs to the total operating costs of the hospitals were 67, 68, and 71 percent respectively.

According to the study results, the average proportion of energy costs (including payments for water, electricity, telephone, gas and fuels of the vehicles and the hospital) to the total operating expenses is 0.58 percent. This result is close to the ratio obtained from studies conducted on the hospitals of *Zanjan* University of Medical Sciences [= 0.63 percent] (*Khoshnam*, 2011) and on the hospitals of *Isfahan* University of Medical Sciences [= 1.4 percent] (*Ashrafi*, 2007). The value of this indicator in a study conducted on Public and Educational Hospitals of *Iran* University of Medical Sciences (*Rezapour*, 2006) is equal to 4 percent which is about 7 times greater than the energy costs of the hospital under study. Although the value of this index is low in this study, with regard to the implementation of the second phase of targeted subsidies law, efficient methods should be employed to reduce energy costs.

In this study, the average proportion of the costs of repairs and maintenance to the total operating costs of the hospital is 0.83 percent which is close to the proportions obtained in the studies on the hospitals of *Zanjan* University of Medical Sciences (*Khoshnam*, 2011), *Qods* hospital (*Rezapour*, 2008) and hospitals of *Isfahan* University of Medical Sciences (*Ashrafi*, 2007) as 2.76, 2 and 0.6 percent, respectively, but is inconsistent with the results obtained from the study on the public and educational hospitals of *Iran* University of Medical Sciences [= 7 percent] (*Rezapour*, 2006). It should be noted that the costs of repairing and maintaining medical and administrative equipment are included here due to their low amount. Because of the importance of keeping the hospital in good condition and optimizing spaces and the structure of departments which are often far form relevant standards, center officials should take serious action to absorb needed funds and obtain necessary licenses for measures relating to optimization according to the guidelines and standards.

According to the results of this study, the average proportion of food costs to the total operating costs of the hospital under study is 3.63 percent. Also the average proportion of the costs of medicine, equipment and supplies to the total operating costs of the hospital under study is 24.43 percent which is more than the results of studies on the hospitals of *Isfahan* University of Medical Sciences (*Ashrafi*, 2007), *Qods* Hospital of *Qazvin*, *Iran* (*Rezapour*, 2008), and Public and Educational Hospitals of *Iran* University of Medical Sciences (*Rezapour*, 2006), Hospitals of *Zanjan* University of Medical Sciences (*Khoshnam*, 2011) in which the proportions were 12.6, 11.27 and 13 percent, respectively, but less than the results of the study on *Zanjan* University of Medical Sciences (*Khoshnam*, 2011) as 25.60 percent.

CONCLUSIONS

Regarding the coverage of 41.24 percent of the total operating costs of *22 Aban hospital of Lahijan* with the operating income of the center and considering the hospital's deficits, it is necessary to take essential and urgent steps in order to increase revenue and reduce costs, in particular, personnel costs which comprise a major share, and take serious actions to achieve optimal efficiency by revising the structure and management of the hospital for reducing costs and insurance deductions and for collecting the maximum revenue. Also we need to increase the hospital's capacity through the development of therapeutic and diagnostic services not only to meet the needs of people as much as possible but also to improve the quality of hospital services with proper planning in order to make use of existing resources.

It should be noted that this article is derived from a master's thesis in health services management at *Qazvin* University of Medical Sciences.

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